

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)



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NELLIS AIR FORCE BASE, NEVADA



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DEPARTMENT OF THE AIR FORCE
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This Air Installation Compatible Use Zone (AICUZ) Study for Nellis Air Force Base is an update of the original AICUZ study dated December 1981. The update was initiated because of the addition of Air Warrior exercises, changes of aircraft types and operations, technical improvements to the NOISEMAP program, and steady community growth in the Nellis AFB environs. It is a reevaluation of aircraft noise and accident potential related to Air Force Flying operations. It is designed to aid in the development of local planning mechanisms which will protect the public safety and health, as well as preserve the operational capabilities of Nellis AFB.

The report outlines the location of runway clear zones, aircraft accident potential zones and noise contours, and recommends compatible land use for areas in the vicinity of the base. It is our hope that this information will be incorporated into your community plans, zoning ordinances, subdivision regulations, building codes, and other related documents.

The basic objective of the AICUZ program is to achieve uses of public and private lands in the vicinity of military airfields by controlling incompatible development through local actions. This update provides noise contours based upon the Day-Night A-Weighted Sound Level (DNL) metric used by the Air Force. This report provides the information necessary to maximize beneficial use of the land surrounding Nellis Air Force Base while minimizing the potential for degradation of the health and safety of the affected public.

We greatly value the positive relationship Nellis AFB has experienced with its neighbors over the years. As a partner in the process, we have attempted to minimize noise disturbances through such actions as minimizing night flying, avoiding flights over heavily populated areas, and installing three jet engine hush houses for maintenance activities. We solicit your cooperation in implementing the recommendations and guidelines presented in this AICUZ report.

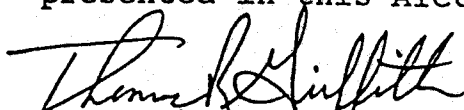

THOMAS R. GRIFFITH
Major General, USAF
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SECTION 1 PURPOSE AND NEED

1.1 Introduction

This study is an update of the Nellis AFB Air Installation Compatible Use Zone (AICUZ) Study. The update presents and documents the changes to the AICUZ for the period of 1981 to 1992. It reaffirms Air Force policy of promoting public health, safety, and general welfare in areas surrounding Nellis AFB. The report presents changes in flight operations since the last study, and provides current noise contours and compatible use guidelines for land areas surrounding the base. It is hoped this information will assist the local communities and serve as a tool for future planning and zoning activities.

The changes in the AICUZ are attributed to:

- Addition of Air Warrior exercises.
- Aircraft reassignment/base realignment.
- Technical improvements to the NOISEMAP program.

The addition of this new exercise, the change in assigned aircraft types and operations, and the continued operation of the previously assigned missions, require an update of the Air Installation Compatible Use Zone Study.

1.2 Purpose and Need

As stated in the previous Nellis AFB AICUZ Study, the purpose of the AICUZ program is to promote compatible land development in areas subject to aircraft noise and accident potential. Community cooperation regarding recommendations made in the earlier AICUZ Study have been outstanding. As the cities of North Las Vegas and Las Vegas, and Clark County prepare and modify their land use development plans, recommendations from this updated AICUZ Study should be included in their planning process to prevent incompatibility that may compromise Nellis AFB's ability to fulfill its mission requirements. Accident potential and aircraft noise should be major considerations in their planning processes.

Air Force AICUZ land use guidelines reflect land use recommendations for clear zones, accident potential zones I and II, and four noise zones. These guidelines have been established on the basis of studies prepared and sponsored by several federal agencies, including the Department of Housing and Urban Development, Environmental Protection Agency, Air Force, and state and local agencies. The guidelines recommend land uses which are compatible with airfield operations while allowing maximum beneficial use of adjacent properties. The Air Force has no desire to recommend land use regulations which render property economically useless. It does, however, have an obligation

to the inhabitants of the Nellis AFB environs and to the citizens of the United States to point out ways to protect the people in adjacent areas, as well as the public investment in the installation itself.

The AICUZ program uses the latest technology to define noise levels in areas near Air Force installations. An analysis of Nellis AFB's flying operations was performed, including types of aircraft, flight patterns utilized, variations in altitude, power settings, number of operations, and hours of operations. This information was used to develop the noise contours contained in this study. The DoD NOISEMAP methodology was used to define the noise zones for Nellis AFB.

1.3 Process and Procedure

Preparation and presentation of this update to Nellis AFB's AICUZ Study is part of the continuing Air Force participation in the local planning process. It is recognized that, as local communities prepare land use plans and zoning ordinances, the Air Force has the responsibility to provide inputs on its activities relating to the community. This study is presented in the spirit of mutual cooperation and assistance by Nellis AFB to aid in the local land use planning process. This study updates information on base flying activities since 1981. Noise contours and AICUZ maps in this study are based on current missions.

Data collection was conducted between 18-22 June, 1990 and revalidated 1-5 June, 1992. Aircraft operational and maintenance data was obtained to derive average daily operations by runway and type of aircraft. This data is supplemented by flight track information (where they fly), flight profile information (how they fly), and ground runup information. After verification for accuracy, data was input into the NOISEMAP software and converted to contours using the Day-Night Average A-Weighted Sound Level (DNL) metric. Noise contours were plotted on an area map and overlaid with clear zone and accident potential zone areas. Appendix A of Volume II contains detailed information on the development of the AICUZ program.

SECTION 2 INSTALLATION DESCRIPTION

2.1 Mission

Nellis AFB provides training for composite strike forces that include every type of aircraft used by the Air Force, air and ground units from the Army, Navy and Marines, and air units from allied nations. Flying training is accomplished through Nellis AFB's host command, the Air Force Weapons and Tactics Center.

2.2 Weapons and Tactics Center

The Weapons and Tactics Center conducts a wide array of activities to ensure Air Force flying forces worldwide maintain skilled instructors, knowledge of the enemy, technical expertise, effective equipment, and sound tactics to fly, fight, and win. Their mission is to assist Air Combat Command (ACC) in organizing, training, and equipping air forces within the U.S., while maintaining a reserve of combat ready forces for deployment anywhere at anytime. The Weapons and Tactics Center develops tactics for using the Air Force weapons systems in the most effective manner and conducts operational tests and evaluations of new systems. The center coordinates through its subordinate units, primarily the 57th Fighter Wing, responsibility for the Air Force Fighter Weapons School, fighter tactics development and evaluation, follow-on operational test and evaluation, "Red Flag" and "Air Warrior" exercises, a three million-acre range complex, liaison with Air Force agencies relating to flying matters, and all the support activities at Nellis Air Force Base.

2.2.1 57th Fighter Wing

The 57th Fighter Wing (FW) conducts flying operations for the U.S. Air Force Weapons and Tactics Center to accomplish the dynamic missions of the U.S. Air Force Fighter Weapons School, the "Red Flag" and "Air Warrior" training exercises, the Air Force Air Demonstration Squadron (Thunderbirds), and the Center's test and evaluation activities. The 57 FW consists of three groups, the 57th Test Group, the 57th Logistics Group, and the 57th Operations Group. The Fighter Weapons School and the Thunderbirds report directly to the wing commander.

2.2.1.1 57th Operations Group

The 57th Operations Group (OG), consisting of four squadrons, provides realistic training through Red Flag and Air Warrior exercises, as well as providing operations and intelligence support for all Nellis AFB flying activities.

414th Composite Training Squadron (Red Flag)

Responsible for Red Flag exercises, the 414th Composite Training Squadron's mission is to maximize the combat readiness and survivability of exercise participants by providing a realistic training environment and an open forum that encourages a free exchange of ideas. To accomplish

its mission, combat units from the United States and several allied countries engage in combat training scenarios conducted within Nellis AFB's range complex.

A typical Flag exercise year includes one Green Flag (an electronic combat-oriented exercise), one Canadian Maple Flag, and four Red Flags. Each Red Flag exercise generally involves a variety of interdiction, attack, air superiority, airlift, air refueling and reconnaissance aircraft. In a twelve month period, more than 500 aircraft fly over 20,000 sorties, while training more than 5,000 aircrews and 14,000 support and maintenance personnel.

549th Joint Training Squadron (Air Warrior)

Coordinated by the 549th Joint Training Squadron, Air Warrior exercises have supported the U.S. Army's Airland Battle training at the National Training Center (NTC), Fort Irwin, California, since 1983. Air Warrior provides air support to the Army combat battalions and brigades deployed to the NTC 12 times a year for two weeks of simulated ground combat against a permanently assigned opposing force. Fighter units from Air Combat Command, Air National Guard, U.S. Air Force Reserve, and occasionally U.S. Air Forces Europe, perform their close air support missions at the NTC. These realistic simulated combat scenarios provide valuable close air support training on a scale not available to units at or near their home stations.

2.2.1.2 57th Test Group

The 57th Test Group (TG) conducts operational tests, tactics, development, special evaluation and software management of A-10, F-15, F-15E, F-16, F-111, and F-117A fighter aircraft. The 57 TG includes two squadrons and a detachment, of which only the 422nd Test and Evaluation Squadron (TES) conducts flight operations from Nellis AFB. The 422 TES conducts operational tests for A-10, F-15, F-15E, and F-16 aircraft and associated weapons, sub-systems and support equipment. The 422 TES also provides tactical expertise and support for technical order development, validation, and verification for the Air Combat Command forces.

2.2.1.3 Air Demonstration Squadron (Thunderbirds)

Nellis AFB is home to America's "Ambassadors in Blue," the world renowned Thunderbirds. The Thunderbirds have performed for over 250 million people in all 50 states and in 56 countries worldwide. The squadron, consisting of 140 handpicked personnel, spends approximately 200 days of the year travelling worldwide to fulfill their mission; planning and presenting precision aerial maneuvers in one of America's frontline fighter aircraft, the F-16. The objective of their mission is to demonstrate to the public the professional competence of Air Force personnel; to support Air Force community relations; and to support Air Force recruiting and retention programs.

2.2.1.4 Fighter Weapons School

The USAF Fighter Weapons School provides graduate level fighter weapons instructor training in the A-10, F-15, F-15E, F-16, and F-111 aircraft weapon systems, as well as graduate level fighter weapons instructor training for air weapons controllers and fighter intelligence officers. The curriculum entails in-depth instruction in all areas of fighter employment. After completion of the

program, graduates will return to the worldwide fighter community to share their special knowledge and skills.

2.2.2 66th Air Rescue Squadron

The 66th Air Rescue Squadron (ARS), was reactivated on Nellis AFB March 1, 1991, after 33 years of deactivation, and is the installation's newest flying unit. The unit's primary mission is worldwide combat rescue in support of Air Combat Command Air Forces. Their secondary mission entails rescue support for air operations over Nellis AFB Range Complex and back-up rescue for civilian agencies in the local area and the southwestern United States. Currently, the 66 ARS accomplishes its flying mission using four UH-60L Blackhawk helicopters; however, in mid-1992 these aircraft will be replaced with four HH-60G PAVE HAWKS. These new aircraft will enhance the rescue capability of the squadron by providing a Global Positioning System, color weather radar, air refueling ability, and other features not available on the UH-60L.

2.2.3 Detachment 2, Air Mobility Command Operations Staff

Detachment 2, Air Mobility Command (AMC) oversees advanced combat air crew training in the tactics, techniques, and operation of AMC assigned aircraft.

2.3 Economic Impact

Nellis AFB is located in Clark County, Nevada, approximately 8 miles northeast of the city of Las Vegas, in the eastern edge of the Las Vegas valley. This location is in an extremely arid region of the Mojave Desert characterized by excellent flying weather. Its economic region of influence (ROI) extends outward a radius of 50 miles from the base borders and includes the five incorporated townships and two unincorporated townships within the valley. The Clark County Department of Comprehensive Planning is the major controlling agency overseeing growth in the NAFB environs.

The base is bordered by Nellis Boulevard and unincorporated Sunrise Manor to the west, Sunrise Manor to the south and southeast, Sunrise Mountain to the east, and unincorporated Clark County to the north. Interstate 15 passes north of the base, connecting Las Vegas to Salt Lake City, Utah and Los Angeles, California. Air service to the Las Vegas valley is provided by most major airlines at the McCarran Airport, approximately 10.5 miles southwest of the base, and by North Las Vegas Airport, a general aviation facility 7.7 miles to the west. Rail freight transport is provided to the valley by the Union Pacific Railroad, with a main line north of and parallel to Interstate 15, 2.5 miles from the base. A spur line from Union Pacific's main line links Nellis AFB, via Nellis AFB Area II, providing freight service to the base (Figure 1). Rail passenger service into Las Vegas valley is provided by AMTRAM over the Union Pacific main line.

2.3.1 Local Economic Characteristics

According to the *Statistical Abstract of the United States, 1991*, the Las Vegas Metropolitan Area had a 1990 population of approximately 741,000 residents, with a 1980-1990 growth rate of 60.1 percent. By the year 2010, Clark County is projected to grow to an estimated 1,548,000 residents (*Nellis AFB Planning For The 21st Century*). Growth in Clark County, which contains

62 percent of the state's population, as well as rapid growth in Washoe County (northwest Nevada), has made Nevada the fastest growing state in the nation.

The hotel and gaming industry, by far the largest employer in Clark County, employs over 114,000 people. The trade and services sectors are the second and third largest Clark County employers with approximately 76,100 and 63,200 employees, respectively. Government employment is the fourth largest employer in the county, and, of the county's 39,100 government employees, 10,620 of them are directly affiliated with NAFB (Table 2.1).

2.3.2 Nellis AFB Impact

Nellis AFB contributes considerably to the area's economic growth and viability. In fiscal year 1991 the payroll for permanently assigned military personnel alone amounted to over \$238 million. Furthermore, Nellis AFB appropriated and nonappropriated fund civilians received over \$47 million in compensation. Construction, contracts, and expenditures for materials, equipment, and supplies during fiscal year 1991 exceeded \$235 million. These expenditures have a direct, as well as an indirect, impact to the area's economy. When respending of these dollars within the local community is calculated, using a 2.0069 multiplier, the secondary, or indirect impact from Nellis AFB exceeds \$1.3 billion (Tables 2.2 and 2.3).

Table 2.1 PERSONNEL BY CLASSIFICATION AND HOUSING - FY 1991

CLASSIFICATION	LIVING ON-BASE	LIVING OFF-BASE	TOTAL
ACTIVE DUTY MILITARY	1,385	7,149	8,534
MILITARY FAMILY MEMBERS	2,397	17,517	19,914
MILITARY RETIREES			13,034
APPROPRIATED FUNDS-CIVILIAN			
GENERAL SCHEDULE			750
FEDERAL WAGE SYSTEM			317
NON-APPROPRIATED FUNDS, CONTRACT CIVILIANS, AND PRIVATE BUSINESS			
CIVILIAN NAF/BX			819
CONTRACT CIVILIANS*			11
ON-BASE PRIVATE BUSINESS			189
TOTAL			43,568

Source: Nellis AFB Economic Impact Statement, 1991

*Not Included Elsewhere

Table 2.2 PERSONNEL ANNUAL GROSS PAYROLL - FY 1991

FORM OF IMPACT	DOLLAR AMOUNT
APPROPRIATED FUND	
ACTIVE DUTY PERMANENT PARTY MILITARY	238,440,137
GENERAL SCHEDULE CIVILIANS	21,668,590
FEDERAL WAGE BOARD CIVILIANS	12,478,056
NONAPPROPRIATED FUND, CONTRACT CIVILIAN, AND PRIVATE BUSINESS	
CIVILIAN NAF	4,236,498
CIVILIAN BX	4,418,700
CONTRACT CIVILIANS*	3,257,200
ON-BASE PRIVATE BUSINESSES	1,614,288
MILITARY RETIREES	192,511,738
TOTAL DIRECT ECONOMIC IMPACT	478,625,207
TOTAL INDIRECT ECONOMIC IMPACT**	960,552,927

Source: Nellis AFB Economic Impact Statement, 1991

*Not included elsewhere

**Utilizing a 2.0069 multiplier

Table 2.3 CONSTRUCTION, CONTRACTS, AND EXPENDITURES - FY 1991

FORM OF IMPACT	ANNUAL EXPENDITURE
CONSTRUCTION	
MILITARY CONSTRUCTION PROGRAM	1,273,544
NONAPPROPRIATED FUND	4,308,680
MILITARY FAMILY HOUSING	7,527,300
O & M	22,025,822
OTHER	499,300
TOTAL CONSTRUCTION	35,634,646
CONTRACTS AND PROCUREMENT: SERVICES, MATERIALS, EQUIPMENT AND SUPPLIES	
SERVICES CONTRACTS	81,780,975
OTHER SERVICES*	67,967,960
COMMISSARY	4,828,940
BASE EXCHANGE	2,668,000
HEALTH (CHAMPUS)	13,225,075
EDUCATION (IMPACT AID & TUITION ASSISTANCE)	1,884,895
TEMPORARY DUTY	2,851,004
OTHER MATERIAL, EQUIPMENT, & SUPPLY*	24,767,430
TOTAL CONTRACTS & PROCUREMENT	199,974,279
INDIRECT IMPACT OF CONTRACTS AND PROCUREMENT**	401,328,380

Source: Nellis AFB Economic Impact Statement, 1991

*Not included elsewhere

**Utilizing a 2.0069 multiplier

2.4 Flying Activity

To describe the relationship between aircraft operations and land use, it is necessary to fully evaluate the exact nature of flying activities. An inventory has been made of such things as the types of aircraft based at Nellis AFB, where those aircraft fly, how high they fly, how many times they fly over a given area, and at what time of day they operate.

The principal aircraft operating from Nellis AFB and the average number of daily operations for each aircraft are shown below. Numbers portrayed include the average daily operations of Red Flag and Air Warrior exercises, as well as Nellis AFB based aircraft. An operation is defined as one departure, one approach, or half a closed pattern. A closed pattern consists of both a departure portion and an approach portion-i.e. two operations.

	<u>TYPE OF AIRCRAFT</u>	<u>AVERAGE DAILY OPERATIONS</u>
Based	A-10	62
	F-15 C/D/E	92
	F-16	164
	H-60	12
Transient/Exercise	A-6	4
	A-7	4
	A-10	10
	B-1	8
	B-52H	4
	C-130	8
	C-135A	4
	EA-6B	2
	E-3A	4
	F-4	20
	F-14	4
	F-15 C/D/E	16
	F-16	150
	F-18	4
	F-111D	32
	KC-135R	6
	OV-10	4

Aircraft operating from Nellis AFB use the following basic flight patterns:

- Straight out departure from 03 L/R.
- Straight in approach to 21 L/R.
- Departures from Runway 21 L/R and approaches to Runway 03 L/R are to/from the north and west to avoid McCarran International Airport and North Las Vegas Terminal airspace and to reduce aircraft noise impact on developed areas.
- Overhead landing pattern.
- Re-entry VFR pattern.

Nellis AFB flight patterns (Figure 2) result from several considerations, including:

- Takeoff patterns routed to avoid heavily populated areas as much as possible.
- Air Force criteria governing the speed, rate of climb, and turning radius for each type of aircraft.
- Efforts to control and schedule missions to keep noise levels low, especially at night.
- Coordination with the Federal Aviation Administration to minimize conflict with civilian aircraft operations, especially those related to McCarran International Airport.
- Routing to avoid overflight of populated areas while transporting live munitions.

To the maximum extent possible, engine runup locations have been established in areas that minimize noise for people on-base, as well as for those in the surrounding communities. Normal base operations do not include late night engine runups, but heavy work loads or unforeseen contingencies sometimes require a limited number of nighttime engine runups.

Airfield environs planning is concerned with three primary aircraft operational/land use determinants: 1) accident potential to land users, 2) aircraft noise, and 3) hazards to operations from land uses (height obstructions, etc.). Each of these concerns is addressed in conjunction with mission requirements and safe aircraft operation to determine the optimum flight track for each aircraft type. The flight tracks depicted in Figure 2 are the result of such planning.

SECTION 3 LAND USE COMPATIBILITY GUIDELINES

3.1 Introduction

The Department of Defense (DoD) developed the Air Installation Compatible Use Zone (AICUZ) program for military airfields. Using this program, DoD works to protect aircraft operational capabilities at its installations and to assist local government officials in protecting and promoting public health, safety, and quality of life. The goal is to promote compatible land use development around military airfields by providing information on aircraft noise exposure and accident potential.

AICUZ reports describe three basic types of constraints that affect, or result, from flight operations. The first constraint involves areas which the Federal Aviation Administration (FAA) and DoD have identified for height limitations (see Height and Obstruction Criteria in Appendix D of Volume II). Air Force obstruction criteria are based upon those contained in Federal Aviation Regulation Part 77 under subpart C.

The second constraint involves noise zones produced by the computerized Day-Night Average A-Weighted Sound Level (DNL) metric and the DoD NOISEMAP methodology. Using the NOISEMAP computer program, which is similar to FAA's Integrated Noise Model, DoD produces noise contours showing the noise levels generated by current aircraft operations. The AICUZ report contains noise contours plotted in increments of 5 dB, ranging from DNL 65 dB to DNL ≥ 80 dB. Figure 3 shows DNL noise contours. Additional information on noise methodology is contained in Appendix C of Volume II of this report.

The third constraint involves accident potential zones based on statistical analysis of past DoD aircraft accidents. DoD analysis has determined that the areas immediately beyond the ends of runways and along the approach and departure flight paths have significant potential for aircraft accidents. Based on this analysis, DoD developed three zones that have high relative potential for accidents. The clear zone, the area closest to the runway end, is the most hazardous. Because of the risk, DoD generally acquires the land through purchase or easement to prevent development. Accident potential zone I (APZ I) is an area beyond the clear zone that possesses a significant potential for accidents. Accident potential zone II (APZ II) is an area beyond APZ I having measurable potential for accidents. While aircraft accident potential in APZs I and II does not warrant acquisition by the Air Force, land use planning and controls are strongly encouraged in these areas for the protection of the public. A sample population density standard for use in APZs is provided in Volume II, Appendix F.

Due to Nellis AFB having parallel runways 1,000 feet apart, Nellis AFB clear zones encompass areas 4,000 feet wide by 3,000 feet long. APZ I is 4,000 feet wide by 5,000 feet long, and APZ II is 4,000 feet wide by 7,000 feet long (Figure 3). In addition to the standard APZs for Runways 03 L/R, these runways have curved APZs which follow the flight tracks of the majority

of the southwest bound departures and arrivals. Supplemental information on accident potential is contained in Appendix B of Volume II of this report.

3.2 Land Use Compatibility

Each AICUZ report contains land use guidelines. Figure 4 lists land uses versus all possible combinations of noise exposure and accident potential at Nellis AFB, showing land uses that are compatible or incompatible. Noise guidelines are essentially the same as those published by the Federal Interagency Committee on Urban Noise in the June 1980 publication, *Guidelines for Considering Noise in Land Use Planning and Control*. The U.S. Department of Transportation publication, *Standard Land Use Coding Manual (SLUCM)*, has been used for identifying and coding land use activities.

3.3 Participation In The Planning Process

As local communities prepare their land use plans, the Air Force must be ready to provide additional inputs. Nellis AFB's Civil Engineer (CE) has been designated as the official liaison with the local community on all planning matters. The BCE's office is prepared to participate in the continuing discussion of zoning and other land use matters as they may affect, or may be affected by, Nellis AFB.

Figure 4
LAND USE COMPATIBILITY

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y ¹	A ¹¹	B ¹¹	N	N
11.12	Single units; semidetached	N	N	N	A ¹¹	B ¹¹	N	N
11.13	Single units; attached row	N	N	N	A ¹¹	B ¹¹	N	N
11.21	Two units; side-by-side	N	N	N	A ¹¹	B ¹¹	N	N
11.22	Two units; one above the other	N	N	N	A ¹¹	B ¹¹	N	N
11.31	Apartments; walk up	N	N	N	A ¹¹	B ¹¹	N	N
11.32	Apartments; elevator	N	N	N	A ¹¹	B ¹¹	N	N
12	Group quarters	N	N	N	A ¹¹	B ¹¹	N	N
13	Residential hotels	N	N	N	A ¹¹	B ¹¹	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	A ¹¹	B ¹¹	C ¹¹	N
16	Other residential	N	N	N ¹	A ¹¹	B ¹¹	N	N
20	Manufacturing							
21	Food & kindred products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
22	Textile mill products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
24	Lumber and wood products (except furniture); manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
25	Furniture and fixtures; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
26	Paper & allied products; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
27	Printing, publishing, and allied industries	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
28	Chemicals and allied products; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
29	Petroleum refining and related industries	N	N	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
30	Manufacturing							
31	Rubber and misc. plastic products; manufacturing	N	N ²	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
32	Stone, clay and glass products manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
33	Primary metal industries	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
34	Fabricated metal products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks manufacturing	N	N	N ²	Y	A	B	N
39	Miscellaneous manufacturing	N	Y ²	Y ²	Y	Y ¹²	Y ¹³	Y ¹⁴
40	Transportation, communications and utilities							
41	Railroad, rapid rail transit and street railroad transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
42	Motor vehicle transportation	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
43	Aircraft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
44	Marine craft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴

NELLIS AFB, NEVADA

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
45	Highway & street right-of-way	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
46	Automobile parking	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
47	Communications	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
48	Utilities	N ³	Y ⁴	Y	Y	Y	Y ¹²	Y ¹³
49	Other transportation communications and utilities	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
50	Trade							
51	Wholesale trade	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
52	Retail trade-building materials, hardware and farm equipment	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
53	Retail trade-general merchandise	N	N ²	Y ²	Y	A	B	N
54	Retail trade-food	N	N ²	Y ²	Y	A	B	N
55	Retail trade-automotive, marine craft, aircraft and accessories	N	Y ²	Y ²	Y	A	B	N
56	Retail trade-apparel and accessories	N	N ²	Y ²	Y	A	B	N
57	Retail trade-furniture, home furnishings and equipment	N	N ²	Y ²	Y	A	B	N
58	Retail trade-eating and drinking establishments	N	N	N ²	Y	A	B	N
59	Other retail trade	N	N ²	Y ²	Y	A	B	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y ⁶	Y	A	B	N
62	Personal services	N	N	Y ⁶	Y	A	B	N
62.4	Cemeteries	N	Y ⁷	Y ⁷	Y	Y ¹²	Y ¹³	Y ^{14,21}
63	Business services	N	Y ⁸	Y ⁸	Y	A	B	N
64	Repair services	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
65	Professional services	N	N	Y ⁶	Y	A	B	N

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
65.1	Hospitals, nursing homes	N	N	N	A*	B*	N	N
65.1	Other medical facilities	N	N	N	Y	A	B	N
66	Contract construction services	N	Y ⁶	Y	Y	A	B	N
67	Governmental services	N	N	Y ⁶	Y*	A*	B*	N
68	Educational services	N	N	N	A*	B*	N	N
69	Miscellaneous services	N	N ²	Y ²	Y	A	B	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N ²	A*	B*	N	N
71.2	Nature exhibits	N	Y ²	Y	Y*	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	A	B	N	N
72.11	Outdoor music shell, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y ¹⁷	Y ¹⁷	N	N
73	Amusements	N	N	Y ⁸	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y ^{8,9,10}	Y	Y*	A*	B*	N
75	Resorts and group camps	N	N	N	Y*	Y*	N	N
76	Parks	N	Y ⁸	Y ⁸	Y*	Y*	N	N
79	Other cultural, entertainment and recreation	N	Y ⁹	Y ⁹	Y*	Y*	N	N
80	Resources production and extraction							
81	Agriculture (except livestock)	Y ¹⁶	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}
81.5 to 81.7	Livestock farming and animal breeding	N	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
82	Agricultural related activities	N	Y ⁵	Y	Y ¹⁸	Y ¹⁹	N	N
83	Forestry activities and related services	N ⁵	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}
84	Fishing activities and related services	N ⁵	Y ⁵	Y	Y	Y	Y	Y
85	Mining activities and related services	N	Y ⁵	Y	Y	Y	Y	Y
89	Other resources production and extraction	N	Y ⁵	Y	Y	Y	Y	Y

LEGEND

SLUCM - Standard Land Use Coding Manual, U.S. Department of Transportation.

Y - (Yes) - Land use and related structures are compatible without restriction.

N - (No) - Land use and related structures are not compatible and should be prohibited.

Y^a - (yes with restrictions) - Land use and related structures generally compatible; see notes 1 through 21.

N^x - (no with exceptions) - See notes 1 through 21.

NLR - (Noise Level Reduction) - NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation measures into the design and construction of the structures. See Appendix E, Vol II.

A, B, or C - Land use and related structures generally compatible; measures to achieve NLR for A(DNL 66-70), B(DNL 71-75), C(DNL 76-80), need to be incorporated into the design and construction of structures. See Appendix E, Vol II.

A*, B*, and C* - Land use generally compatible with NLR. However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. See appropriate footnotes.

* - The designation of these uses as "compatible" in this zone reflects individual federal agencies' and program considerations of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

NOTES

1. Suggested maximum density of 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.
2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures (See Vol 2, Appendix F).
3. The placing of structures, buildings, or above-ground utility lines in the clear zone is subject to severe restrictions. In a majority of the clear zones, these items are prohibited. See AFR 19-9 and AFR 86-14 for specific guidance.
4. No passenger terminals and no major above-ground transmission lines in APZ I.
5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
6. Low-intensity office uses only. Meeting places, auditoriums, etc., are not recommended.
7. Excludes chapels.
8. Facilities must be low intensity.
9. Clubhouse not recommended.
10. Areas for gatherings of people are not recommended.
11.
 - a. Although local conditions may require residential use, it is discouraged in DNL 66-70 dB and strongly discouraged in DNL 71-75 dB. An evaluation should be conducted prior to approvals, indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones, and that there are no viable alternative locations.
 - b. Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) for DNL 66-70 dB and DNL 71-75 dB should be incorporated into building codes and considered in individual approvals. See Appendix E for a reference to updated NLR procedures.
 - c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, particularly from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures which only protect interior spaces.
12. Measures to achieve the same NLR as required for facilities in DNL 66-70 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
13. Measures to achieve the same NLR as required for facilities in DNL 71-75 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
14. Measures to achieve the same NLR as required for facilities in DNL 76-80 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
15. If noise sensitive, use indicated NLR; if not, the use is compatible.
16. No buildings.
17. Land use is compatible provided special sound reinforcement systems are installed.
18. Residential buildings require the same NLR as required for facilities in DNL 66-70 dB range.
19. Residential buildings require the same NLR as required for facilities in DNL 71-75 dB range.
20. Residential buildings are not permitted.
21. Land use is not recommended. If the community decides the use is necessary, hearing protection devices should be worn by personnel.

SECTION 4 LAND USE ANALYSIS

4.1 Introduction

Land use planning and control is a dynamic, rather than a "static" process. The specific characteristics of land use determinants will always reflect, to some degree, the changing conditions of the economic, social, and physical environment of a community, as well as changing public concerns. The planning process accommodates this fluidity in that decisions are normally not based on boundary lines, but rather on more generalized area designations.

Nellis AFB, physically located in Clark County, Nevada, was originally built in an outlying, largely undeveloped area. Nellis AFB has been a catalyst for the region's growth. As a result, the base is being encroached upon by suburban, commercial, and industrial development approaching from the west, northwest, and south. Clark County has been extremely proactive in its land use planning to minimize incompatible development around Nellis AFB. Current incompatibilities occurred prior to the AICUZ program and, subsequently, prior to incorporation of Clark County Airport Overlay zoning.

Computer technology has enabled Nellis AFB to more precisely display its flight tracks and noise contours for land use planning purposes. This same technology has revealed Nellis AFB's region of influence extends through portions of North Las Vegas to the west and into unincorporated Clark County to the northwest and northeast.

For the purposes of this study, existing land uses have been classified into one of the following six categories:

- Residential. This category includes all types of residential activity, such as single and multi-family residences and mobile homes, at a density of greater than one dwelling unit per acre.
- Commercial. This category includes offices, retail, restaurants and other types of commercial establishments.
- Industrial. This category includes manufacturing, warehousing, automobile junkyards, and other similar uses.
- Public/Quasi-Public. This category includes publicly owned lands and/or lands to which the public has access, including military reservations and training grounds, public buildings, schools, churches, cemeteries, and hospitals.
- Recreational. This category includes land areas designated for recreational activity, including parks, golf courses, wilderness areas and reservations, conservation areas, and areas designated for trails, hiking, camping, etc.

- Open/Agriculture/Low Density Residential. This category includes undeveloped land areas, agricultural areas, grazing lands, and includes areas with residential activity at densities less than or equal to one unit per acre.

4.2 Existing Land Use

Las Vegas valley, located in southeastern Clark County, is an extremely arid region of the Mojave Desert. The valley is surrounded by Spring Mountain to the west, the Las Vegas range to the north, and Frenchman's Mountain to the east. The arid landscape contains flora and fauna characteristic of low desert ecosystems and is unsuitable for most agricultural purposes. Development within the valley has generally been in a modified grid pattern, with arterial streets running north-south and east-west. This pattern has tended to concentrate similar land uses in a manner which reduces intrinsic incompatibilities and complements the transportation and commercial needs of the populace.

4.2.1 Unincorporated Clark County

Developed property pertinent to this study within unincorporated Clark County abuts Nellis AFB and the cities of North Las Vegas and Las Vegas. Land uses are those expected to be found in and near large metropolitan areas.

The Las Vegas valley is growing at an incredible rate and this growth is expected to continue. As undeveloped property within the incorporated areas becomes less obtainable, development activity within unincorporated Clark County will expand.

Nellis AFB proper is bordered exclusively by unincorporated Clark County land. To the north and northeast the land is primarily undeveloped. Development that has occurred in this region includes industrial excavation areas, a racetrack, strip commercial retail and some multi-family residences, all of which are along Las Vegas Boulevard.

Considerable development has occurred east of the base along the Nellis Boulevard corridor within unincorporated Sunrise Manor. Between Nellis Boulevard and Nellis AFB, off the departure ends of Runway 21 L/R, industrial development is the predominant land use. Several small tracts of residential property also exist between Nellis AFB and Nellis Boulevard. Notably more residential development, in the forms of mobile home parks, multi-family housing, and single family housing, occurs west of Nellis Boulevard. North of Cheyenne Boulevard, and between Nellis Boulevard and Las Vegas Boulevard, land use is almost exclusively residential. Some strip commercial use is also present along Nellis Boulevard.

South of Cheyenne Boulevard, east of Lamb Boulevard, and north of Judson Street, the predominant land use is industrial. West of Lamb Boulevard exists a mixture of uses with residential being the primary use. The Carey Avenue corridor contains several public school facilities.

South of the base, but still within Sunrise Manor's jurisdiction, residential is by far the largest land use. Again this covers the spectrum of residential possibilities, with considerable amounts of multi-family, high density development. The Nellis Boulevard corridor continues to maintain its exclusively commercial characteristics. Several public schools are also sited in this region.

Property east of Nellis AFB is primarily undeveloped. Frenchman's Mountain presents extreme topographical variations and is unsuitable for development.

A tract of county land north of Interstate 15, and completely enclosed by the City of North Las Vegas, is impacted by noise from Nellis AFB. Although residences are sited in this "county island," their densities fit into the open agricultural land use classification (Figure 5).

4.2.2 City of North Las Vegas

The City of North Las Vegas, although not immediately adjacent to Nellis AFB, does contain land which is impacted by Nellis AFB operations. The most notable land use in this area is industrial. Along the length of the north side of Interstate 15, and within the land bordered by Interstate 15, Craig Boulevard, and Lamb Boulevard, the land use is exclusively industrial. The Las Vegas Boulevard corridor contains a nearly continuous commercial pattern from Owens Avenue to Pecos Road. Although most of this commercial activity is less than one block deep, major commercial concentrations occur near intersections with Lake Mead Boulevard, Bruce Street, Evans Avenue, and Pecos Road. Commercial development along Lake Mead Boulevard accounts for the major remaining commercially-developed areas in North Las Vegas.

Between Las Vegas Boulevard and Interstate 15 the land use is a mixture of residential development with several areas of public uses, such as schools, parks, and municipal buildings.

North of the industrial strip occurring along Interstate 15, the land use is primarily open agriculture. Several large recreational areas, such as the North Las Vegas Regional Park, the Shadow Creek Golf Course, and Craig Ranch Golf Course, are also present. Small residential areas occur at the Martin Luther King intersections with Ann Road and Lone Mountain Road. South of Lone Mountain Road residential development exists at the North 5th Street intersection (Figure 5).

4.2.3 City of Las Vegas

The City of Las Vegas, although considerably more developed than either North Las Vegas or unincorporated Clark County, is not directly impacted by Nellis AFB operations. The majority of Las Vegas land use visible within the Nellis AFB AICUZ maps is residential. Strip commercial development exists along the major thoroughfare of Nellis Boulevard (Figure 5).

4.3 Current Zoning

Clark County airport overlay zones require sound attenuation for many structures, primarily residential, which are sited within the 1981 AICUZ noise contours. These sound attenuation and land use standards are still valid for large portions of land impacted by noise from present

operations. Considerable amounts of land within the jurisdiction of North Las Vegas is impacted by noise from Nellis AFB flying operations although no building standards addressing noise attenuation are in effect. Future development incompatibilities due to noise impacts are expected.

Zoning designations allow residential development on large amounts of land impacted by DNL ≥ 75 dB noise (Figure 6). This form of development in high noise zones is incompatible according to Air Force recommendations. Provided these designations remain, incompatible development is expected to occur.

Nellis AFB clear zones and accident potential zones are static and development within the APZs is regulated by the restrictions imposed by the Clark County airport overlay districts. Special restrictions regarding development densities within the accident potential zones facilitate compatible development.

4.3.1 Unincorporated Clark County

Clark County realized the need to incorporate land use restrictions for property in the vicinity of active airports which protect public safety, prevent encroachment from development, and maintain the airport's economic viability. The Clark County Board of Commissioners appointed a citizens board in 1980 to begin researching the subject. Clark County was more fortunate with its timing of addressing these matters than many other areas nationwide due to the large amount of yet vacant land in the vicinity of its airports, and particularly in the vicinity of Nellis AFB. The outcome of the County's effort to address airport environs land use compatibility issues was the adoption of, in May of 1986, the *Public Health and Safety Programs: Airport Environs* into the *Clark County, Nevada Comprehensive Plan*.

To maintain compatible development within noise zones and accident potential zones the County has implemented airport overlay zoning districts. These overlay districts implement additional restrictions upon land uses in addition to the requirements of the formal zoning designation. Developments within the overlay district must conform to the requirements of both districts or the more restrictive of the two. Clark County's airport environs overlay districts are composed of seven subzones: clear zone, accident potential zone I and II, and DNL noise zones 65-70 dB, 70-75 dB, 75-80 dB, and ≥ 80 dB. The zones were based on the results of Nellis AFB's 1981 AICUZ Study and are consistent with the recommendations of the United States Air Force and the *Standard Land Use Classification Manual*. Sound attenuation is required within the noise impacted areas and density and land use restrictions have been incorporated for the accident potential zones. In addition to these land use classifications, Clark County has implemented height restrictions in the Nellis AFB environs consistent with the requirements of Air Force Regulation 86-14 and Federal Aviation Regulation Part 77.

4.3.2 City of North Las Vegas

The city of North Las Vegas adopted in March, 1988, a zoning ordinance to protect the health, safety, and general welfare of their residents through the establishment of minimum regulations

governing development and use of land. Airports and airport overlay zoning are not addressed in their zoning ordinances. City officials are, however, very interested in the results of this Nellis AFB AICUZ and have expressed an interest in the benefits to be gained by using AICUZ planning recommendations.

The vast majority of North Las Vegas land within the Nellis AFB environs is zoned either for residential or industrial use. North of Interstate 15 exists a wide corridor of industrial zoning sited to utilize the railroad freight service. A triangular tract of land north of Craig Road and east of Lamb Boulevard is also zoned as industrial. The length of Las Vegas Boulevard is essentially zoned commercial, as is a large amount of Cheyenne Boulevard. Another significant tract of commercial designation is sited south of Craig Road, north of Alexander Road, and west of Pecos Road. The remainder of the land within the environs is almost entirely designated for residential usage.

4.3.3 City of Las Vegas

Las Vegas land within the Nellis AFB environs is primarily designated for residential usage. A corridor of commercial designation supports Nellis Boulevard. A small lot designated for industrial usage is also located in the Nellis Boulevard corridor at its intersection with Washington Avenue (Figure 6).

4.4 Future Land Use

Vacant Clark County property adjacent to Nellis AFB is expected to develop in a manner consistent with its present zoning. The industrial area off the departure ends of Runways 21 L/R is expected to expand, filling the majority of presently vacant Sunrise Manor property and taking on an industrial park aspect. Residential development within Sunrise Manor is anticipated to expand north of Las Vegas Boulevard. The intermittent commercial corridor along Las Vegas Boulevard is expected to expand, occupying the vacant parcels. Property along Las Vegas Boulevard northeast of Nellis AFB is expected to see little development in the near future, as is property east of the installation.

Projections of future development within North Las Vegas, based upon the existing locations of the different zoning classifications, are very similar to the pattern of current development. Most of the vacant areas south of Interstate 15 will see single family residential development, except for a large portion of the area north of Cheyenne Avenue which allows greater residential densities. Commercial development along North Las Vegas Boulevard should see growth, resulting in a continuous, and expanded commercial corridor. Property south of Craig Road should see an expansion of industrial development.

Las Vegas property within Nellis AFB environs is extensively developed and future changes will primarily be a result of redevelopment and renovation.

4.5 Incompatible Land Uses

4.5.1 Noise Zones

Due to changes in aircraft types and operations since the Nellis AFB 1981 AICUZ Study, noise contours from Nellis AFB current operations impact less land area. Sound, generated from Nellis AFB flying operations, greater than DNL 65 dB presently impacts approximately 15,557 off-base acres.

Four hundred and forty off-base acres, containing approximately 395 residents, are currently impacted by noise levels in excess of DNL 80 dB. About six and a half acres of the Carefree County Mobile Home Park, sited west of Nellis Boulevard and north of Cheyenne Avenue, are impacted by this level of noise. This form of residential development is incompatible according to Air Force recommendations within any AICUZ noise contour. Industrial development within the DNL ≥ 80 dB noise zone totals approximately 135 acres. The majority of this development is within the AE-80 (Airport Environs DNL 80 dB) county airport overlay zoning district requiring noise attenuation and is compatible.

The DNL 75-80 dB contours impact approximately 1,545 acres containing approximately 5,096 residents. The primary land use within this contour is open agriculture, encompassing nearly 3,262 acres. Roughly 313 acres of residential development is impacted by noise in the DNL 75-80 dB range. Based upon Clark County's airport overlay zoning, the majority of the housing sited within this contour should have sound attenuation measures incorporated. It should be noted that Air Force guidelines do not recommend any residential development within areas impacted by noise above DNL 75 dB. Businesses and industry located in this contour should already have sound attenuation measures incorporated in them, as required by the relevant overlay district, and are compatible.

Approximately 4,656 acres and 9,462 residents are impacted by noise in the DNL 70-75 dB range. Residential development within this contour totals approximately 554 acres. Residential development may be compatible provided sound attenuation is incorporated. Most of the housing, besides mobile homes, within this contour is relatively new and should contain sound attenuation or thermal insulation. Recreational areas impacted by this noise zone, in the form of city parks and playgrounds are compatible from an Air Force perspective. Commercial and industrial activity within the DNL 70-75 dB contour, totalling approximately 80 acres and 401 acres respectfully, is compatible, especially when sound attenuation is incorporated in the office and meeting spaces.

The DNL 65-70 dB noise contour encircles approximately 13,634 acres, impacting over 9,000 residents. The predominant land use, involving nearly 10,500 acres, is open agriculture, and, for the most part, is undeveloped. Residential development involves approximately 1,655 acres, the majority of which is within Sunrise Manor, the remainder being within North Las Vegas. Sound attenuation requirements for those residences within Clark County's airport overlay districts, which overlies Sunrise Manor, and modern energy conservation designs for those residences outside of the overlay districts, should allow most of these residences to be designated compatible. Mobile home parks

within this contour, such as those located south of Craig Road, remain incompatible according to Air Force recommendations regardless of appropriate sound attenuation requirements.

4.5.2 Clear Zones and Accident Potential Zones

Incompatible development within the approach Clear Zones and Accident Potential Zone I of Runway 21 is currently non-existent. Seven and a half acres of this clear zone extends beyond base boundaries and is currently undeveloped. Air Force policy is to acquire real property interest over all properties within the clear zone. The acquisition process for this parcel of land is currently in progress. Incompatibility potential does exist within APZ II due to the presence of the Las Vegas International Speedway. Population concentrations at the speedway may very easily exceed the Air Force fifty persons per acre density recommendation. Fortunately, races are held weekend evenings during hours of minimal flying operations. If weekday races were to become popular, incompatibility of the race track within APZ II could become an issue.

Unlike the northern Clear Zone, Runway 03's Clear Zone (the southern clear zone) is entirely within the base proper and contains no incompatibilities. However, development within Runway 03's APZs is much more significant than what has occurred within the northern APZs. Within APZ I the majority of development adjacent to the base is light industrial and commercial, which is compatible provided population densities are not exceeded. The most critical example of incompatibility within APZ I is the Carefree County Mobile Home Park. A small amount of low density residential development is also present, however at this time it does not exceed one dwelling unit per acre. The total number of residents living within APZ I is approximately 837. Accident Potential Zone II contains a mix of industrial, commercial and residential development. Mobile home parks and apartment complexes constitute a significant amount of the residential activity. Within either APZ, these forms of development are incompatible according to Air Force development density guidelines. These sites are located at the intersection of Carey Street and Marion Drive, the intersection of Colton Avenue and Lamb Boulevard, east of Marion Drive and north of Lake Mead Boulevard, and along Dolly Lane (Figure 5). The total number of residents living within APZ II is approximately 4,218.

4.6 Planning Considerations

AICUZ noise contours describe the noise characteristics of a specific operational environment, and, as such, will change if a significant operational change is made. If the local communities that make up the Nellis AFB environs attempt to use AICUZ noise contours as boundary lines for zoning districts, it is conceivable that problems will result. Should a new mission be established at Nellis AFB, adding a larger number of airplanes or additional model types, the AICUZ could be amended.

Additionally, the Air Force recommends that AICUZ data be utilized with all other planning data. Therefore, specific land use control decisions should not be based solely on AICUZ noise contours.

With these thoughts in mind, Nellis AFB has revised the 1981 Study and has provided flight track, accident potential zone, and noise contour information in this report that reflects the most current and accurate picture of aircraft activities.

SECTION 5 IMPLEMENTATION

The implementation of the AICUZ study must be a joint effort between the Air Force and the adjacent communities. The Air Force's role is to minimize the impact on the local communities by Nellis AFB operations. The role of the communities is to ensure that development in the environs is compatible with accepted planning and development principles and practices.

5.1 Air Force Responsibilities

In general, the Air Force perceives its AICUZ responsibilities as encompassing the areas of flying safety, noise abatement, and participation in the land use planning process.

Well maintained aircraft and well trained aircrews do much to assure that aircraft accidents are avoided. Despite the best training of aircrews and maintenance of aircraft, however, history makes it clear that accidents do occur. It is imperative that flights be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to a potential accident.

By Air Force regulation, commanders are required to periodically review existing traffic patterns, instrument approaches, weather minima, and operating practices, and evaluate these factors in relationship to populated areas and other local situations. This requirement is a direct result and expression of Air Force policy that all AICUZ plans must include an analysis of flying and flying related activities designed to reduce and control the effects of such operations on surrounding land areas. Noise is generated from aircraft both in the air and on the ground. In an effort to reduce the noise impact of Nellis AFB operations on the surrounding communities, the base has attempted to restrict nighttime flying activities and has routed flight tracks to avoid populated areas such as the cities of Las Vegas and North Las Vegas. Nellis AFB has three hush houses to reduce the noise impact from aircraft ground runups, the most recent installed in 1986 at a cost of over \$600,000. Furthermore, in fiscal year 1996, another hush house is programmed to be built on Nellis AFB at a cost of over \$850,000.

The preparation and presentation of this Nellis AFB AICUZ update is one phase of the continuing Air Force participation in the local planning process. It is recognized that as the local community updates its land use plans, the Air Force must be ready to provide additional inputs.

It is also recognized that the AICUZ program will be an ongoing activity even after compatible development plans are adopted and implemented. Base personnel are prepared to participate in the continuing discussion of zoning and other land use matters as they may affect, or may be affected by Nellis AFB. Base personnel will also be available to provide information, criteria and guidelines to state, regional and local planning bodies, civic associations and similar groups.

5.2 Local Community Responsibilities

The residents of the cities of North Las Vegas and Las Vegas, Clark County and Nellis AFB have a long history of working together for mutual benefit. We feel that adoption of the following recommendations will strengthen this relationship, increase the health and safety of the public, and help protect the integrity of the base's flying mission:

- Maintain and enhance the inclusion of AICUZ policies and guidelines into the comprehensive plans of Clark County and incorporate AICUZ policies and guidelines into North Las Vegas comprehensive plans. Use overlay maps of the AICUZ noise contours and Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals.
- Modify existing zoning ordinances and subdivision regulations to support the compatible land uses outlined in this study.
- Ensure height and obstruction ordinances reflect current Air Force and Federal Aviation Administration (FAA) requirements.
- Maintain or modify as necessary the building codes to ensure that new construction within the AICUZ area has the recommended noise level reductions incorporated into the design and construction of these facilities.
- Continue to inform Nellis AFB of planning and zoning actions that have the potential of affecting base operations. Develop a working group representing city planners, county planners, and base planners to meet at least quarterly to discuss AICUZ concerns and major development proposals that could affect airfield operations.

LAST PAGE